

## REMARKS

The following remarks are responsive to the Non Final Office Action of May 12, 2009.

At the time of the Office Action, claims 1–16 were pending. The status of the claims is as follows:

- **Claims 1–15** stand rejected under **35 U.S.C. § 112, second paragraph**, as being indefinite;
- **Claims 1–16** stand rejected under **35 U.S.C. § 101** as not being in a proper statutory category;
- **Claims 1–4, 6–8, 10, and 13–16** stand rejected under **35 U.S.C. § 102(e)** as being anticipated by **Bruno**, et al. (U.S. Patent No. 7,394,904);
- **Claims 11 and 12** stand rejected under **35 U.S.C. § 103(a)** as being obvious over **Bruno** and **Ashour**, et al. (U.S. Patent No. 6,459,797);
- **Claim 9** stands rejected under **35 U.S.C. § 103(a)** as being obvious over **Bruno** and **Hashimoto** (U.S. Patent No. 7,386,130);
- **Claim 5** stands rejected under **35 U.S.C. § 103(a)** as being obvious over **Bruno**;
- **Claims 1–3, and 10–15** stand rejected under **35 U.S.C. § 102(e)** as being anticipated by **Ashour**;
- **Claims 6–8** stand rejected under **35 U.S.C. § 103(a)** as being obvious over **Ashour** and **Abel**, et al. (U.S. Patent No. 5,596,644);
- **Claims 4 and 5** stand rejected under **35 U.S.C. § 103(a)** as being obvious over **Ashour** and **Fay**, et al. (U.S. Patent Publication No. 2002/0161462); and
- **Claim 9** stands rejected under **35 U.S.C. § 103(a)** as being obvious over **Ashour** and **Hashimoto**, et al. (U.S. Patent No. 7,386,139).

Claim 1 has been canceled and replaced with claim 17. Claims 2 and 3 have been amended to address formalities. Claim 9 has been amended to provide proper dependency. Claims 10–16 have been canceled and claims 18–23 have been newly added.

**35 U.S.C. § 112, Second Paragraph, Indefiniteness of Claims 1–15**

*1. Applicants have replaced independent claims with new independent claims that comprise subject matter directed towards a single statutory class and are thus not indefinite.*

In the Office Action, on p. 2, the Examiner rejected claims 1–15 as being ambiguous as to what the Applicants are claiming, noting that the claims appear to be directed to both an apparatus and a process-method.

Claim 1 has been replaced with claim 17. This new claim is clearly defined as a method and contains clearly enumerated method steps.

Claims 19–23 are all apparatus claims.

Claims 19 and 20 are directed to an apparatus that is clearly defined by structural elements and the interrelationships between those structural elements. The use of functional language to claim certain aspects of the structure is clearly permitted under 35 U.S.C. § 112, ¶6.

Claims 21–23 are directed to apparatus (including a computer program product), however, these claims are all written in a format that has been expressly indicated as allowable by the Board of Patent Appeals and Interferences. In *Ex Parte Bo Li*, 2008-1213 (BPAI 2008), the Board expressly allowed a claim written in the form:

42. A computer program product, comprising a computer usable medium having a computer readable program code embodied therein, said computer readable program code adapted to be executed to implement a method for generating a report, said method comprising:

Applicants respectfully contend that claims 21–23 are of precisely this form, and thus, are directed to a single statutory form—namely, and apparatus/product.

For this reason, Applicants respectfully assert that the claims are not indefinite, and request that the rejection under 35 U.S.C. § 112 be withdrawn from the application.

**35 U.S.C. § 101 Non-statutory Subject Matter of Claims 1–16**

*2. Applicants have replaced independent claims with new independent claims that comprise subject matter directed towards a proper statutory class.*

In the Office Action, on pp. 3–4, the Examiner rejected claims 1–16 because the statutory “process” under 35 U.S.C. 101 must be tied to another statutory category.

With claims as currently amended, only claim 17 and the claims that depend therefrom are method/process claims—the remaining claims are clearly device/apparatus claims. Claim 17 incorporates a receiver, a computer, and an output, and therefore constitutes a machine under the “machine or transformation” test. Furthermore, the outputting of the synthetic sound signal constitutes a transformation of a physical object, namely the motion of air molecules, in order to satisfy the statutory requirements under 35 U.S.C. § 101.

Based on the amended language, Applicants respectfully assert that the claims belong to proper statutory classes and request that the Examiner withdraw the 35 U.S.C. § 101 rejection from the application.

**35 U.S.C. § 102(e) Anticipation of Claims 1–4, 6–8, 10, and 13–16 by Bruno**

*3. Bruno is not prior art under 35 U.S.C. § 102(e) because it is a PCT application that was filed in a foreign language and on dates that do not qualify it as prior art under 102(e).*

In the Office Action, on pp. 4–5, the Examiner rejected claims 1–4, 6–8, 10, and 13–16 as being anticipated by Bruno. Applicants respectfully assert that Bruno is not prior art under 35 U.S.C. § 102(e).

35 U.S.C. § 102(e) provides, in relevant part:

[An] international application filed under the treaty defined in section 351(a) shall have the effects for the purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English Language.

Bruno is a U.S. patent originating from PCT Application No. PCT/FR03/00607, filed February 25, 2003, and published in French on September 4, 2003. However, its US filing date was not until August 26, 2004, which is well after the PCT filing date of the present application of December 15, 2003.

Nor does Bruno constitute an application for patent, published under section 122(b) filed in the United States before the invention by the applicant.

For this reason, Bruno cannot serve as prior art under 35 U.S.C. § 102(e).

*4. Bruno fails to teach or suggest the element of the added independent claims for receipt and processing of a command for both synthesizing and spatializing a sound, and that the device receiving the command does not receive a sound, but rather teaches modifying a preexisting signal containing temporal and spatial information and adapting it to a room having an arbitrary configuration.*

In the Office Action, on p. 5, the Examiner indicated, with regard to claim 1 that Bruno teaches:

...wherein the device comprises a spatialization means which is at least partly incorporated in a synthesis means of the device (fig. 9–10 (SI, 6); fig. 1 (1); col. 8 line[s] 13–24 / synthesized and spatial signal)...

Claim 17 (originally claim 1, as currently revised), now requires receiving a command for both synthesizing and spatializing a sound, but that the device receiving the command does not receive the sound.

Bruno does not disclose the mechanism related to the creation of the synthesizing and spatializing of a sound, but rather deals with subsequent adaptation and handling of a pre-existing signal containing spatialization information to an arbitrarily arranged acoustic field, and therefore does not teach the element of receiving by a receiver of the device a command for synthesizing and spatializing a sound, particularly with regard to the claim element that the sound is not received by a receiver of the device that receives the command for synthesizing and spatializing the sound.

Bruno discloses a method for reproducing an acoustic field characterized by the position of each acoustic source of the field on any reproduction unit, irrespective of the configuration of the speakers of the reproduction unit (“acoustic field whose spatial configuration is arbitrary”) (1:65 – 2:2 <col>:<line(s)>).

The method disclosed is implemented by the system shown in Figure 2. This system comprises means 6 for shaping an input signal, a decoder 1, and a reproduction unit 2 comprising reproduction elements (speakers) 3 and 3n.

**The method comprises receiving a signal SI comprising a temporal and spatial definition of an acoustic field to be reproduced** (8:13–18), and the signal SI may take several forms as disclosed at 20:8–60. In other words, the signal SI in Bruno is a pre-existing signal, and Bruno does not provide any disclosure related to the creation of a synthesized signal.

The received definition of the acoustic field is provided to the shaping unit 6 so as to project signal SI over a basis of spatio-temporal function (8:18–24). According to Bruno, any acoustic field may be described as a distribution of the spatiotemporal functions (8:27–29), and it is the adaptation of the preexisting signal, including one that may have originated by synthesis, to any acoustic field that Bruno deals with.

Once the projection is performed, coefficients associated to each of the spatio-temporal functions are output to the decoder. According to a particular variant, the shaping unit is omitted and the decoder directly receives the coefficients from a synthesizer or a microcomputer (see column 8, lines 25-26).

In any case, it appears that Bruno clearly envisions any form of synthesis operation of an acoustic field apart from the spatialization. According to Bruno's method, a signal representing the sounds to be reproduced by the reproduction unit are always received sounds and not created. There is no mention of the synthesis of the acoustic field.

In Bruno, based on a prior knowledge of the configuration of the reproduction elements 3n, the decoder converts the received coefficients so as to generate series of control signals for controlling the reproduction element, and so that the acoustic field reproduced in the reproduction unit is identical to the acoustic field firstly described by the input signal SI (7:34 – 8:12).

Hence, it appears that Bruno discloses the use of a basis of spatio-temporal functions so as to describe any acoustic field, and so as to be able, from a prior knowledge of the configuration of a reproduction unit, to reproduce any acoustic field. But the reproduction and adaptation of an acoustic field to one with an arbitrary spatial configuration is not relevant to the synthesis and spatialization of a sound based on a command, as required by the independent claims added in this response.

Therefore, Bruno's disclosure is not relevant to the subject matter of the amended claims, since the subject matter of these claims is clearly directed to the synthesis of sound which takes into account spatialization.

According to the present independent claims, there is no receipt of a signal which represents a sound. To the contrary, the present independent claims are directed to the generation of such a signal.

For these reasons, and based on the newly provided independent claims, Applicants assert that the claim language clearly distinguishes over the prior art, and respectfully request that the Examiner withdraw this 35 U.S.C. § 102 rejection from the present application.

**35 U.S.C. § 102(e) Anticipation of Claims 1–3 and 10–15 by Ashour**

*5. Ashour fails to teach or suggest the element of the added independent claims for receipt and processing of a command for both synthesizing and spatializing a sound, and that the device receiving the command does not receive a sound, but rather teaches first synthesizing a sound, and then spatializing the sound in two separate and different processes.*

In the Office Action, on pp. 2–3 and 10–11, the Examiner rejected claim 1 as being anticipated by Ashour, citing to Ashour's Figs. 3 and 4 as well as 3:35–65 and 5–15.

In Ashour, similar to Bruno, the spatialization is carried out by receiving an acoustic signal or a representation of an acoustic field, and then by processing this signal for spatializing it.

Claim 17 now makes clear that the sound which is associated to the virtual source and which the output synthetic sound signal represents is not received by the device. Thus, the subject matter of claim 17 is clearly different from that disclosed by Ashour. Indeed, according to Ashour, a sound is first synthesized and then subsequently spatialized in two separate and different processes, as described in previous responses.

Namely, Ashour discloses at 3:10–17 a usual synthesis of “any suitable kind of synthesizer, e.g. an FM synthesizer or a wavetable or waveguide synthesizer. MIDI synthesizer 210 takes a MIDI data stream as input and generates in known fashion digital samples representing a number of instruments, *which are then combined in mixer 220* in the manner to

be described below to generate a stereo output which can be decoded by a Pro Logic decoder.”  
(emphasis added).

Thus, it is clear from the above that Ashour separates the synthesis of the sound signal and the spatialization, contrary to the newly provided independent claims.

For these reasons, and based on the newly provided independent claims, Applicants assert that the claim language clearly distinguishes over the prior art, and respectfully request that the Examiner withdraw this 35 U.S.C. § 102 rejection from the present application.

**35 U.S.C. §103(a) Obviousness of Claims 1–16 over Either Bruno or Ashour in view of Some Combination of Hashimoto, Abel, and Fay**

*6. Applicants rely upon the above arguments with respect to the remaining dependent claims, and asserts that none of the additional references supplants the deficiencies identified above with respect to either Bruno or Ashour.*

In the Office Action, the Examiner combined Bruno and separately Ashour with numerous other references in establishing an obviating combination of references for various dependent claims in the present application. Without addressing the specifics of the additional references on the merits, Applicants rely upon the above arguments and assert that the disclosures of each of these additional references, alone or in combination, does not serve to solve the deficiencies of either the Bruno or the Ashour reference. The Examiner has cited these references for purposes related to the specifics of the dependent claims. Fay is being cited merely for its alleged teaching of a temporal loudness variation. Applicants submit that Abel does not disclose a joint step for synthesis and spatialization, since the gains disclosed by Abel merely reflect the position of the source and do not define the loudness of the source. Rather, the sound is already generated when the gains are applied. Hashimoto, on the other hand, does not deal with sound synthesis, but merely with sound reproduction.

For these reasons, Applicant asserts that the claim language clearly distinguishes over the prior art, and respectfully request that the Examiner withdraw the 35 U.S.C. § 103 rejection from the present application.

In re Appln. of Nicol et al.  
Application No. 10/582,834  
Response to NF Office Action 5/12/09

**Conclusion**

The application is considered in good and proper form for allowance, and the Examiner is respectfully requested to pass this application to issue. If, in the opinion of the Examiner, a telephone conference would expedite the prosecution of the subject application, the Examiner is invited to call the undersigned attorney.

Respectfully submitted,

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